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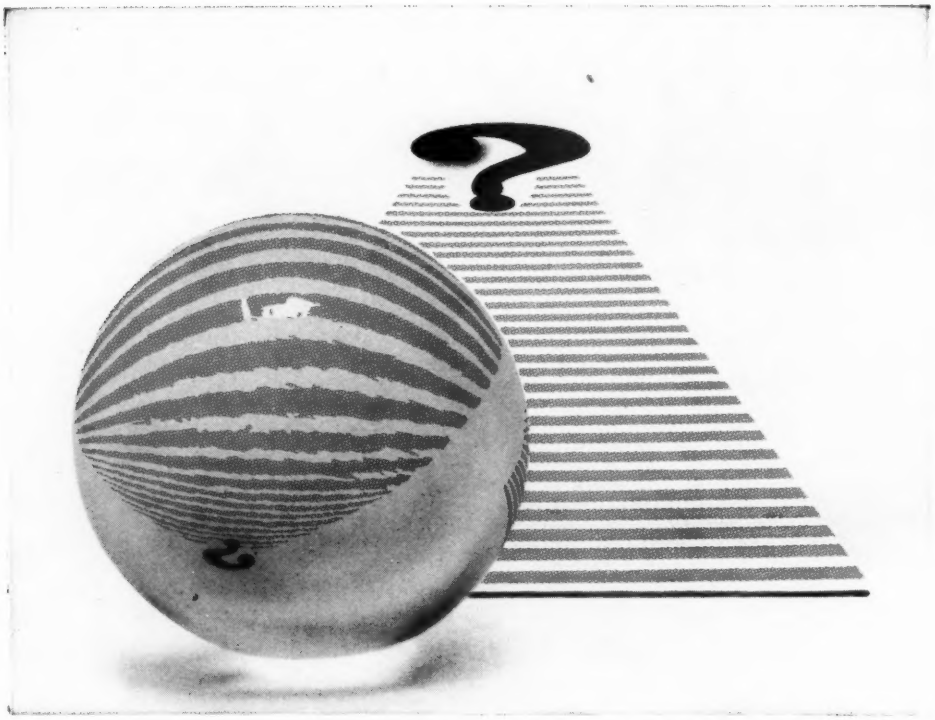

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Official Journal of the Alaska State Medical Association

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SUBSCRIPTION PRICE is $6.00 per year, postpaid. Single copies, when available may be obtained at the rate of $2.00 each.

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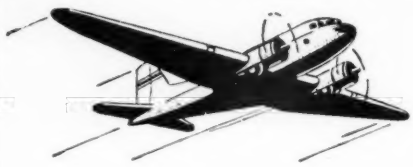

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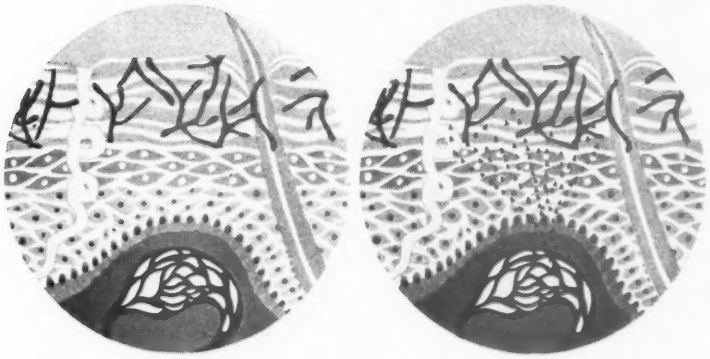

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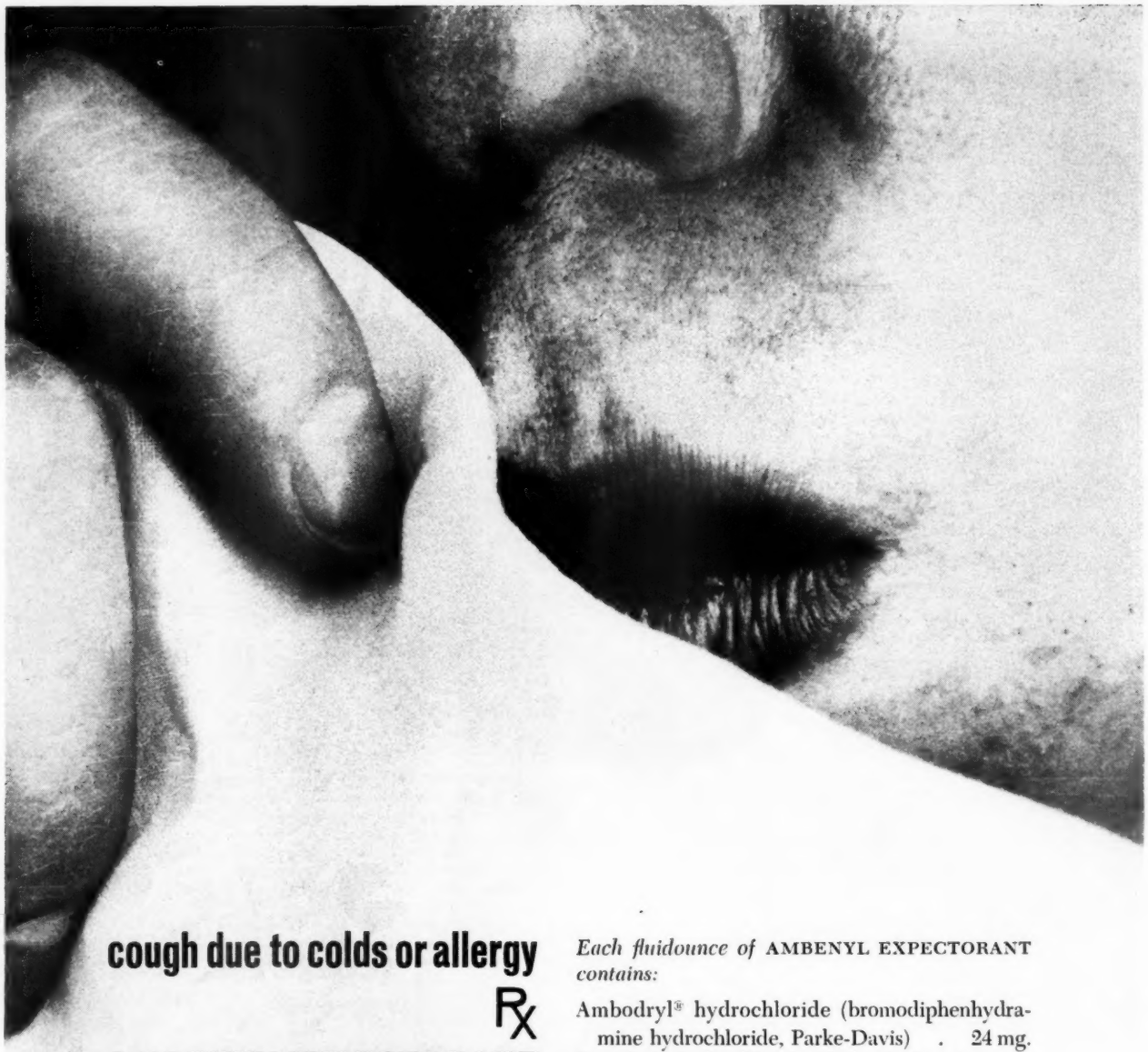

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A TEST FOR THE ENZYMATIC DEFICIENCY OF HEREDITARY METHEMOGLOBINEMIA

E. M. SCOTT, Ph.D.
Arctic Health Research Center
ANCHORAGE

The presence of methemoglobin in red cells may be due to any one of three causes: exposure to a toxic material such as nitrite, or other drugs and chemicals; the presence of an abnormal hemoglobin (hemoglobin M) (1); the hereditary absence of an enzyme necessary for reduction of methemoglobin (2, 3).

Methemoglobinemia is ordinarily suspected from the observation of cyanosis in a patient with no apparent circulatory or respiratory disorder. The presence of methemoglobin in blood is easily confirmed by the method of Evelyn and Malloy (4). The blood in methemoglobinemia is dark, almost chocolate-colored, and this coloration persists after shaking with air. Addition of neutral cyanide will change the blood color to a bright red. This change can be readily observed visually in a 5% suspension of red cells in 0.9% sodium chloride.

Differentiation of the three types of methemoglobinemia may be made as follows:

1. Acquired methemoglobinemia due to exposure to toxic materials will disappear when the exposure is interrupted, while the other types are not so affected by an environmental change. However, it should be noted that the amount of methemoglobin in the enzymatic type of methemoglobinemia will be affected by ascorbic acid intake (2, 3, 5). If a methemoglobinemic person of the hereditary type is placed in a hospital and his ascorbic acid intake is increased, the amount of methemoglobin will decrease and the cyanosis will be much less evident. In one case in Alaska, confusion in diagnosis occurred because of this effect of change of diet.

2. Hereditary enzymatic methemoglobinemia can be distinguished by the lowered capacity of the red cells for reducing methemoglobin (2, 3). The determination of rate of reduction of methemoglobin is quite cumbersome and we have found that this method is inaccurate and not always reproducible. A test for diaphorase (6) in red cells described below is much more satisfactory. Treatment of this type of methemoglobinemia by injection of methylene blue reduces all the methemoglobin to hemoglobin but the effect is transitory and methemoglobin can be detected again a few days after treatment.

3. Methemoglobinemia due to an abnormal hemoglobin is inherited as a dominant trait while

the enzymatic type is recessive. A cyanotic patient with hemoglobin M should therefore have a cyanotic parent. Hemoglobin M is most readily detected by a spectrophotometric test (1) or by starch electrophoresis (8).

METHOD OF DETECTION OF ENZYME DEFICIENCY IN METHEMOGLOBINEMIA

Reagents:

ACD—1.47 gm glucose, 1.32 gm sodium citrate and 0.44 gm citric acid are dissolved in 100 ml water. 2 ml are used as anticoagulant for 10 ml of blood.

Phosphate-buffered saline — 1 volume 0.1 M potassium phosphate buffer, pH 7.3 plus 9 volumes 0.9% sodium chloride.

1% sodium nitrite—100 mg sodium nitrite is dissolved in 10 ml phosphate-buffered saline immediately before use.

Tris buffer, pH 8.55—121 gm tris(hydroxymethyl)—aminomethane is dissolved in water, brought to pH 8.55 with concentrated hydrochloric acid and made up to one liter.

0.01M EDTA solution—3.2 mg sodium ethylenediaminetetraacetate (Eastman) are dissolved in 100 ml distilled water.

0.0012 M 2,6-dichlorobenzenoneindophenol solution—39 mg of the dye (Eastman) are dissolved in 100 ml 0.01 M tris buffer, pH 8.55.

DPNH solution—40 mg reduced diphosphopyridine nucleotide (90% pure, Sigma Chemical Co.) are dissolved in 5 ml distilled water. The solution is kept frozen.

Five to ten ml. of blood are collected with an anticoagulant (preferably ACD if the specimen must be held for any length of time). The cells are centrifuged off and washed three times with 10 volumes of phosphate-buffered saline. For each ml of cells, 1 ml 1% sodium nitrite is added and the mixture shaken with air at intervals for two hours. The cells are then centrifuged off and washed five times with 10 volumes of phosphate-buffered saline.

To one ml. of oxidized cells is added 19 ml. of distilled water. The mixture is shaken, centrifuged, and the hemolyzate decanted from the ghosts. The methemoglobin content of the hemolyzate is determined by the cyanmethemoglobin method or by the method of Evelyn and Malloy (4). To two cuvettes are added the following: 0.05 ml tris buffer, 0.1 ml EDTA solution, and 0.1 ml 2,6-dichlorobenzenoneindophenol solution. To one cuvette is added 2.65 ml water, and to the other is added hemolyzate equivalent to 3.25 mg methemoglobin and water to a volume of 2.9 ml. The reaction is started by addition of 0.1 ml DPNH solution to both cuvettes and optical density at 600 mu determined at 5 minute intervals for 20 minutes. The rate of reaction is calculated in both cuvettes by the formula:

$$\text{Rate (in min}^{-1}) = \frac{\text{log optical density at 10 min} - \text{log optical density at 20 min}}{10}$$

Net rate of reaction is the rate with hemolyzate minus the rate of the blank.

RESULTS

There are 18 known cases of hereditary methemoglobinemia in 10 Alaskan Eskimo and Indian families (5). Red cells from 10 methemoglobinemic persons in 8 of these families have been tested by the above procedure. In addition, 11 parents of methemoglobinemic children and 56 persumably normal white persons have been studied.

The results are shown in Table I. The rate of non-enzymatic reduction of dye is about .005 min^{-1}, and the addition of methemoglobinemic hemolyzate causes no appreciable change in this rate. Most normal hemolyzates show a net rate or dye reduction of .007 to .012 min^{-1}, while parents of methemoglobinemic children have net rates of from .003 to .006 min^{-1}.

Table I. Rate of reduction of dye (min^{-1}), corrected for non-enzymatic reaction.

Subjects	Number	Average Rate	Standard Diviation	Range
Methemoglobinemic	10	.0000	.0005	−.0008-.0008
Parents of Methemoglobinemic Children	11	.0042	.0014	.0022-.0060
Normal	56	.0093	.0023	.0045-.0179

DISCUSSION

The enzyme for which this test was developed can be called a diaphorase, since it catalyzes the

reduction of a dye by a reduced pyridine nucleotide. The enzyme also can be considered as a cytochrome c reductase or a methemoglobin reductase. The latter two types of enzymatic activity are much less readily demonstrated, since the relative rates of reaction with dye, cytochrome c and methemoglobin are 15,000:130:1. The enzyme is specific for reduced diphosphopyridine nucleotide; reduced triphosphopyridine nucleotide is less than a tenth as active (7).

Lack of this enzyme satisfactorily explains the symptoms found in methemoglobinemia. Hemoglobin in the presence of air undergoes a slow spontaneous oxidation to methemoglobin. The red cell has enzymatic systems capable of metabolizing glucose, but it lacks a cytochrome system and therefore has no aerobic metabolism. Consequently the pyridine nucleotide in the red cell is normally in the reduced state. Reduced pyridine nucleotide in the presence of the enzyme here described reduces any methemoglobin that may be formed and the latter is therefore not normally detectable in the red cells.

SUMMARY

Hemolyzates from persons with hereditary enzymatic methemoglobinemia will not catalyze the reduction of the dye 2,6-dichlorobenzenoneindophenol by reduced diphosphopyridine nucleotide. Enzymatic activity of normal hemolyzates in this respect is easily demonstrable. A test based on this observation may have clinical usefulness in differentiating the enzymatic type from other forms of methemoglobinemia.

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THE PATHOLOGICAL PHYSIOLOGY OF BONE DISEASE*

HENRY WILDE, M.D.
JUNEAU

THE ANATOMY AND HISTOLOGY OF BONE

Almost all bone is preformed in cartilage. Intramembranous ossification occurs in the frontal, parietal, part of the occipital and temporal bone as well as in the maxilla and mandible. Endochondral bone forms from perichondrium in the center of long bones. Cartilage is eroded by blood vessels and connective tissue and a marrow cavity is formed. This results in a tube; the diaphysis which is capped on ends by epiphyses. The cartilage cells are arranged in rows and the organic matrix between them calcifies. Capillaries proliferate into it, are followed by osteoblasts which then form bone matrix (osteoid). Inorganic matter deposits here, hardening the matrix. Remodeling of matrix is continuous through osteoblast and osteoclast activity. The typical long bone consists of the substantia compacta, the marrow cavity and a spongiosa at both ends. A periosteum and endosteum line the outer table diploe (spongiosa) and the inner table. The pericranium is the periosteum and the dura is the endosteum. Both compacta and spongiosa consist of layers or lamellae. These are arranged concentrically along vessels to form a Haversian system or osteone unit. The physiological processes are probably the same in all bone.

THE BASIC CONSTITUENTS OF BONE

The bone mineral is the apatite lattice crystal of calcium phosphate which binds large amounts of water. There is constant ion interchange and crystals are of different size and solubility. **The organic bone matter** is nearly all collagen. This is a crystalline substance secreted by cells. It is physiologically inactive. Ground substance is a poorly understood polymer of glucuronic acid and hexoseamines, comprising about 5% of organic bone matter (excluding fat). **Water** composes 60% of forming bone. Only 10% of senile bone is however water. It is all bound to the apatite crystals of the calcium phosphate complex. **The turn-over or remodeling** of bone matrix is continuous but poorly understood. Some of the

mechanisms involved in remodeling are change in hydration of individual crystals, ion exchange or re-shuffling within crystals and thermal recrystalization. These are modified by growth, resorption (osteoclastic activity) and age. New crystals are highly hydrated and imperfect, old ones are less hydrated and more perfect. Old bone elements may even become physiologically unavailable. The proportion of old elements increases with age. Skeletal minerals participate in electrolyte shifts of serum. Only recently formed osteones participate rapidly since they are in closer contact with circulation. This fact has blocked attempts to "wash out" radioactive minerals from bone. Bone physiology is hence governed by numerous factors such as chemical crystal laws, serum concentrations of calcium and phosphorus (serum is supersaturated in respect to these ions), the osteoblast and osteoclast systems, numerous endocrine influences which act on some or all of these factors, the absorption and excretion of substances required by bone and yet unknown mechanisms.

CALCIUM AND PHOSPHORUS METABOLISM

Calcium composes 1½% of body weight. Almost 99% of this is within bone. Systems other than bone which require calcium are blood coagulation, regulation of membrane permeability, regulation of neuro-muscular and myocardial excitability and production of milk. The normal

*Presented in part as a Basic Science Seminar at University of Alberta Hospital, Edmonton, Canada, March 1958.

human diet contains about 1 Gm of calcium. It is absorbed by the stomach, duodenum and jejunum. Absorption is not determined by body need. It is favored by vitamin D, a high protein diet, calcium depletion states and an acid medium. Absorption is reduced by vitamin D deficiency, an increased dietary phosphate content, an alkaline medium, excessive oxalate and fat intakes. Serum calcium is in a supersaturated state due to the action of parathormone and vitamin D (normal 9-11 mg/100 cc). About 50-70% of this is ultrafiltrable, the rest is protein bound and of less physiological importance. Calcium can be mobilized from bone almost instantly. The calcium : phosphate ratio is 2.2 : 1. Calcium elimination is renal.

Phosphorus composes about 1% of body weight. About 90% of this is in bone. The normal diet contains about 0.9 - 1.3 Gm. Absorption occurs in the small bowel. Excretion is renal. Absorption is favored by vitamin D and an excess fatty or low calcium diet. Absorption is reduced by a high oral intake of iron, cacium and aluminium hydroxide. The normal serum phosphorus range is 3 - 4 mg/100 cc. That of children is higher: 5 - 6 mg/100 cc.

THE EFFECT OF PARATHYROID HORMONE (PTH)

PTH has been the center of much controversy. Two major theories of action have emerged since Collip and associates first crystalized parathormone at this university.

The Phosphaturic Theory of Albright and Reifenstein. PTH has a primary phosphaturic effect on the kidney. This causes a fall in the serum calcium : phosphorus solubility Konstant which results in resorption of calcium from bone. The arguments in favor of this theory are: An isolated kidney which is perfused with serum and PTH reacts by phosphaturia. Following parathyroidectomy there is a marked decrease in urinary phosphorus concentration. This can be reverted by PTH administration. The arguments against this theory are: PTH causes an increase in serum calcium in nephrectomized rats. There is evidence for a direct effect of PTH on bone, demonstrated by bone resolution around transplanted parathyroid tissue and in tissue culture with added PTH. The issue is further confused by recent experiments which demonstrated that the phosphaturic and hypercalcemic effects of PTH may differ in 2 fractions of a PTH preparation. Phosphaturia may also be induced in both animal and isolated kidney by a variety of different tissue extracts.

The Primary Effect on Bone Theory of Collip and more recently of Newman holds two mechanisms responsible for the action of PTH on bone. Mechanism one is present in normal and parathyroidectomized animals. There is a diffusion equilibrium between bone and serum which alone can maintain serum calcium at about 7 mg/100 cc. Mechanism two operates only in the presence of PTH, acting directly on bone. Any fall in the serum calcium level stimulates PTH release and shifts calcium from bone to serum, maintaining it in a supersaturated state.

THE EFFECT OF VITAMIN D

Vitamin D is produced by irradiating ergosterol. It is also known as calciferol. The cod liver oil vitamin is not the same as calciferol and is more active. The D group vitamins of higher vertebrates are all derived from cholesterol. Vitamin D_3 is such a substance of animal origin. 7-Dehydrocholesterol is the naturally occuring provitamin D. Little vitamin D is found in natural foods and much of the human requirement is obtained by exposure to sun and hence by irradiation of the provitamin in skin. Vitamin D rich foods are: fish livers, egg yolk, butter. Milk is poor in vitamin D but fortified milk contains 135-400 USP units of vitamin D per quart. The recommended daily vitamin D intake should be 400-606 units. The ratio of optimum to lethal dose of vitamin D is 1-2000.

The vitamin D group favors absorption of calcium and phosphorus from the gut and increases the rate of bone resorption thus freeing mineral for the calcification of newly formed bone. In massive amounts (above 50,000 U.q.d.) it acts in a similar fashion as PTH; increasing mobilization of calcium and phosphorus from bone to an undesirable degree.

THE EFFECT OF OTHER HORMONES

Growth hormone stimulates growth of epiphyseal cartilage. **Thyroid hormone** acts syner-

gistically with growth hormone and also accelerates maturation of bone. It may cause an increase in renal calcium excretion. **Estrogens** have an uncertain effect in inhibiting resorption of spongy bone. **Androgens** are poorly understood in their relationship to bone metabolism. **ACTH and the cortisones** suppress new bone formation (osteogenesis) but do not interfere with normal bone resorption. This may result in osteoporosis.

DISEASES OF BONE

These may be divided conveniently into 3 main groups but more than one mechanism may be operative in one disease. 1. Disturbances in growth of cartilage. 2. Disturbances in osteogenic-osteolytic balance. 3. Disturbances in deposition of apatite in cartilage or bone matrix.

1. Disturbances in growth of cartilage:

Excessive growth:

- hyperpituitarism in childhood
- hyperthyroidism
- hyperandrogenism
- hyperestrogenism

Decreased growth:

- genetic
  - dyschondroplasia group
  - progeria
  - constitutional dwarfism
  - pseudo-hyperparathyroidism syndrome
  - Turner's gonadal dysgenesis syndrome
- physical
  - radiation
- nutritional
  - caloric restriction
  - immobilization
- endocrine
  - hypopituitarism
  - hypothyroidism
  - Cushing's syndrome

2. Disturbances in osteogenic-osteolytic balance:

Osteoporosis:

This is a decrease in calcified bone. There is decreased matrix formation. This is not true decalcification since the only difference between osteoporotic and normal bone is in the mass of matrix which, however, has a normal calcium content. It is the only metabolic bone disease with normal serum calcium, phosphorus and alkaline phosphatase contents. Osteoporosis may be subdivided as follows:

- genetic:
  - osteogenesis imperfecta group
  - Ehlers-Danlos syndrome
  - fragilitas ossium
- physical:
  - radiation
- nutritional:
  - scurvy
  - immobilization and disuse
- endocrine:
  - hypopituitarism
  - acromegaly
  - hypothyroidism
  - Cushing's syndrome
  - postmenopausal and eunuchoid forms.

Osteosclerosis:

This condition is caused by increased osteoblastic activity. Causes of and syndromes associated with osteosclerosis are: genetic osteopathia striata and osteopoikilosis, trauma, radiation, hypopituitarism, fluorosis, vitamin A intoxication, hypertrophic pulmonary osteoarthropathy (as well as the idiopathic forms of "clubbing"), metastatic tumors. Osteosclerosis may also result from decreased osteolytic activity. Osteopetrosis and the skeletal changes associated with erythroblastosis and heavy metal (Pb, Bi) deposits belong in this group.

Osteitis fibrosa: This condition results from increased osteolytic activity. Severe innanition hyperparathyroidism of both primary (hyperplasia, adenoma) or secondary (renal calcium loss with compensatory parathyroid hyperplasia) types and severe hyperthyroidism may cause this picture. Paget's disease and metastatic tumors are also in this group .

3. Disturbances of deposition of apatite crystals. There are two main clinical syndromes in this group. **Rickets** occurs only in the growing individual and is associated with epiphyseal swelling, costochondral swelling and demineralization of matrix. **Osteomalacia** is the adult form and is characterized by costochondral swelling, Milkman's fractures and generalized demineralization of bone. Low serum calcium and phosphorus levels as well as a high serum alkaline phosphatase activity are characteristic of both rickets and osteomalacia. Urinary calcium excretion is reduced. Vitamin D deficiency is the cause of both diseases. Dietary deficiency or decreased absorption of calcium and phosphorus (see under calcium and phosphorus metabolism) may also result in clinical rickets or osteomalacia. Not uncommon causes of absorption defects are mineral oil overdosage, steatorrhea and chronic pancreatic disease. Any of these factors must be operative for at least two years before skeletal changes can be expected to appear. Excess excretion of calcium and phosphorus due to chronic renal disease as well as certain rare renal tubular defects (phosphate diabetes or D-resistant rickets, Fanconi syndome and renal tubular acidosis) also cause rickets and osteomalacia.

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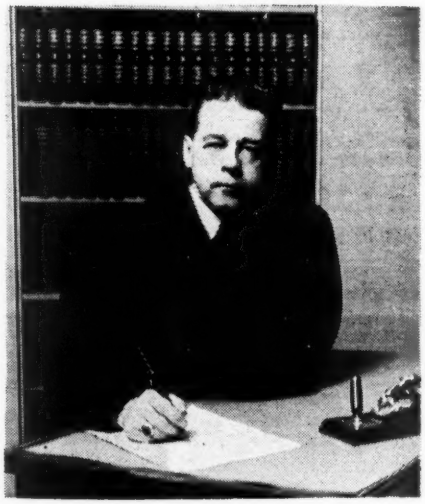
THE PHYSICIAN IN COURT

J. L. McCARREY, Jr., United States District Judge
District of Alaska, Third Division
ANCHORAGE

In every personal injury case the testimony of the doctor or physician is of utmost importance, not only to the jury which must render a verdict to allow or disallow damages to the injured party, but to the Court as well, whose duty it is to preside over the trial proceedings and make a judicial determination on the admissibility of evidence and other matters. The testimony of the medical witness is given great weight by both jury and the Court, not only because of his minute familiarity with the facts concerning the injury but also because of his special academic qualifications. It is he alone who can rightly inform the Court and jury as to the extent of the injury as well as ancillary damages, i.e. emotional disturbances, pain, suffering, period of recuperation, residual impairment, etc., which each injury has wrought. Again, the medical witness must totally evaluate those cases where subjective opinions are the only evidence from which a verdict or judgment can be rendered. Thus, the role of the medical witness is never underestimated by counsel, parties, jury or the Court.

With this as a brief background of the courtroom setting, the medical witness can well appraise his role during the trial.

It has been my experience that most doctors come to the courtroom reluctantly but I have known of those who have testified willingly and extensively, knowing well in advance what is expected of them in the courtroom. The reluctant doctor witness should not be the case once the doctor is fully acquainted with courtroom procedures and is discerning to limit his testimony to the facts in issue and to those fields wherein he is eminently qualified to give expert



testimony. On occasion, however, I find that the younger doctor witness is easily led by the skilled attorney into realms of conjecture, principally based on the premise that the witness, being an expert, will reach for the opportunity to display his unlimited knowledge on all phases of the medical world, ofttimes to his chagrin, since, once the expert evidences a limited knowledge in a particular category, the prepared attorney who has sprung the well-planned stratagem can now lure the expert into other areas of the medical field wherein the expert is not specialized. There the doctor can frequently be discredited even in that portion of his testimony that was based upon training and qualification. This artful chicanery is used skilfully on all novice experts regardless of their fields. Certainly in this day and age of specialization the populace will not cease patron-

izing the heart expert because they observed in court recently that he had limited knowledge about the psychological reaction of the dog Rover who had just been brought out of orbit in Explorer X. Yet during the past several years I have observed certain experts who delved into the conjecture simply, in my humble opinion, because they are afraid someone within the realm of their voices may conclude their inadequacy if they do not attempt on answer. I am certain no friends, and certainly no patients, are lost when the expert simply states "I don't know. That is a question outside of my specialty and you will have to give that question to Doctor so and so."

In our daily lives, because of the tempo of business and mankind and due to the general shortage of professional men and women, the Court and counsel have always strived to hear the medical witness promply when he arrives. That has been my practice and observation. However, I would suggest that the doctor immediately make known to counsel calling him of his arrival. Generally counsel will ask to call him forthwith to the witness stand. Upon being called, the expert should go directly to the clerk of the court who is always seated directly in front of the bench, raise his right hand to the square and take the oath administered by the clerk and/or judge. It is well to look directly toward the person administrating the oath since side glances, the shuffling of papers or the adjusting of one's clothes tend to lead the Court, jury and other interested observers to believe that the oath is a formality but of no importance as far as that witness is concerned. The doctor should next proceed directly to the witness stand which will be pointed out to him by the clerk or Court and immediately be seated. He can, and should, take his reports, films and any other information that he intends to testify from or about. This will save his and the Court's time when it becomes necessary for him to refer to them during his testimony.

It must be remembered by the doctor witness that the relationship between him and the Court and the relationship between him and the examining attorney is obviously different, though under the supervision of the Court. The Court will attempt to curb the overanxious new counsel who is trying his first big personal injury suit, from propounding questions dealing with matters outside the realm of the particular controversy. The Court must also attempt to restrain the overanxious or inexperienced medical witness who attempts to wander into matters that may be interesting to him and in fields which he is well qualified to testify regarding, but which are not germane to the subject under consideration.

When the doctor is basically correct in his direct examination, the cross-examination usually becomes very limited, but once he allows himself to be drawn into an outer sphere, the road back to reality may become tortuous and delayed.

Ofttimes the medical witness is asked to give a yes or no answer. This is very perplexing to the witness who finds his answer not quite that simple. He should remember that the sponsoring attorney will have another chance to let him explain his answer or, if he feels that an explanation is paramount at that time, he can always ask examining counsel to let him explain, or he may appeal to the Court for that privilege, and within the rules the request will usually be granted. The Court and counsel are fully aware of the complexities in medical science. Therefore, pertinent explanation of the medical witness should be full.

While the courtroom proceedings may not be the desired part of a doctor's practice, he should bear in mind that the only way in which a person injured through the negligence of others can generally obtain redress is under the law. In many instances the only means of redress is through the testimony of the doctor. Therefore, in order that justice may be obtained, it is imperative that impartial cooperation should exist between the medical and legal professions.

It has been my good fortune to observe excellent cooperation between the two professions during the past five and one-half years that I have been on the bench. With this as a background, I am confident this same cooperation will continue.

THE DOCTOR AS A WITNESS

ALBERT MAFFEI, LL.B.

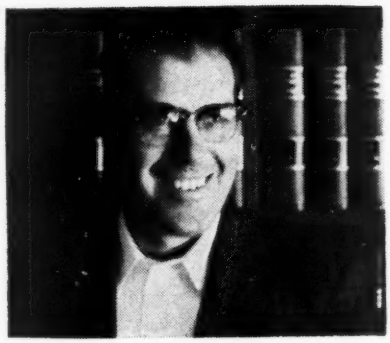
ANCHORAGE

As used in this article, "Witness" has reference to those who appear and testify, and give evidence before a judicial tribunal.

One of the duties which a citizen owes to his government is to support the administration of justice by attending its courts and giving his testimony whenever he is properly summoned. It is, of course, the duty of every witness to attend, as long as commanded, and to testify to all material facts within his or her knowledge.

A witness may either appear voluntarily, when called by a litigant or his counsel, or by order of court, through process entitled a 'subpoena'. A witness who appears by arrangement of litigant or his counsel may appear at a time designated by counsel, whereas witness under a subpoena may appear at the time and place set forth in the subpoena. This, I believe, is important to the members of the medical profession since not only is their time valuable but is also limited.

Even in cases where a subpoena is served, a witness is not always obliged to attend, especially if he or she is to testify at a place distant more than one hundred (100) miles from the place where the witness resides, or at which he or she may be served with the subpoena, unless the court endorses on the subpoena an order for the attendance of the witness. In this instance the witness must also be paid his expenses and witness fees. However, except for the circumstance hereinabove cited, and in circumstances such as sudden illness, or other compelling reasons, the witness is required to appear and refusal to appear and testify after a subpoena has been issued and served upon the witness is punishable by contempt of court, and the court may order the issuance of a warranty of arrest for the witness and have the witness taken into custody by the proper law enforcement authorities. Also, a witness disobeying a subpoena duly served may be required in a civil action to forfeit to the party calling him or her, the sum of Fifty Dollars ($50.00) and all damages which the party may sustain by failure of the witness to attend. The foregoing, of course, is peculiar to Alaska and is according to Alaskan law.



In the foregoing paragraph, a witness required to attend by service of a subpoena, at the time of service of the said subpoena, must be tendered his witness fees plus mileage. The witness fees, at the present time, are Four Dollars ($4.00) per day, plus twenty cents (20c) per mile from either where the witness is served or where he resides to the court room, or other place designated in the subpoena.

In the event that the witness appears on prearrangement with counsel or his litigant, he or she will, of course, be instructed as to when and where to appear and also whether or not to bring documents, reports or photographs, and in most cases the witness will be interviewed by counsel for the witness calling him or her prior to the time set down for the attendance of the witness.

Where the witness appears under subpoena, however, he has generally had no occasion to talk to the counsel and unless otherwise instructed he or she should appear at the time and place set forth in the subpoena. If the subpoena indicates that the witness is to bring with him or her any records, files or documents, they should be with the witness at the time he or she appears in court. This type of subpoena is entitled a "subpoena duces tecum."

Upon appearing in court the witness should check in with the deputy clerk or the bailiff so that the court and counsel will know that the witness has appeared pursuant to the subpoena. The witness will then be instructed to either remain in the general court room, or in the event

that witnesses are excluded, then the witness will take his or her place in the adjoining hallway or witness room designated by the bailiff.

A witness is generally called by the counsel, if the witness is in the court room, or if the witness is in the adjoining hall or witness room, then the witness will be called by the bailiff. The local rules for the District Court for the District of Alaska provide that they remove their topcoats, and if the witness is a man, his hat, before entering the court room and taking the witness stand. When the witness is called, he or she is first duly sworn before the "in court" deputy, who sits directly in front of the presiding judge. Here the witness raises his or her hand and swears that his testimony will be the truth. The witness then takes the stand and answers the questions asked by counsel who has called the witness. Generally, the first questions are identifying questions, that is, witness is asked his or her name, occupation or profession and address. Since the medical witness will generally be called to testify as an expert, he or she must first be proven qualified; therefore, the medical witness will generally be required to give his or her previous educational background and medical training.

The witness should always remember that in a court record the court reporter is taking down the testimony verbatim and therefore any answers should be clear. As medical witnesses will generally testify using technical terms and words not commonly used in ordinary speech, it may be necessary for the witness to properly spell out the words for the benefit of the court reporter. Due to the technical nature of the testimony, the medical witness may also use photographs or diagrams in order to clarify points to both the court and the jury.

Regardless of the number of counsel in the case, the witness will be examined by only one counsel at a time, and that counsel will generally be entitled to complete his entire examination before questions are asked by the other counsel. Generally the witness must testify to all material facts within his or her own personal knowledge, and as the testimony of the medical witnesses is generally of a highly technical nature and of a nature within the exclusive knowledge of the medical profession, the said medical witnesses are entitled to give their own opinions based on this peculiar knowledge.

In this article I do not intend to discuss the matters which pertain to privilege, or admissibility of evidence, as these will depend upon the peculiar circumstances of every trial or hearing. However, I should state that the witness may NOT refuse to answer a question, nor may the witness refuse to testify, except under unusual circumstances such as where the answer would be self-incriminating. When a question is asked by counsel and objected to by other counsel, the witness should refrain from answering the question until such time as the court has ruled on the objection, and if the objection is overruled the witness may answer, or, if the objection is sustained, the witness will NOT answer the question. A witness may, of course, at any time request a clarification of the question from the counsel asking the question. All answers should be direct and should be in answer to the question asked, the witness refraining from digressing into other points or facets of the case.

If the medical witness is not asked questions which he or she thinks are pertinent to the case, then the witness should address the court and request the privilege of submitting this information.

After the witness has testified he or she will again take his or her position in the court room, adjoining hallway or witness room, unless excused by the court.

Before closing I wish to impress upon the medical witness that due to the nature of their knowledge, their testimony may be the controlling factor in most cases, especially in such as personal injury or workmen's compensation cases. Therefore, although the medical witness may wish to refrain from testifying, he or she should remember that his testimony is of such importance that it may determine whether one or the other of the litigants is successful in winning a verdict or judgment.

I should also like to impress upon the medical witness that as their time is valuable, they should always discuss their appearance with the counsel so that the said counsel may arrange for a satisfactory time for their appearance so that their testimony may be heard, if possible, at the convenience of the medical witness.

I realize that the foregoing is elementary to most witnesses, however, it covers most of the basic fundamentals regarding the appearance of a witness. ●

THREE YEARS OF VOCATIONAL REHABILITATION WITH ALASKAN MENTAL PATIENTS*

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ANCHORAGE

This report covers the first three years of formal effort devoted to vocational rehabilitation of mental patients although sporadic attempts had been made earlier. With the assignment of an Office of Vocational Rehabilitation counsellor in the Seattle-Portland area in March, 1956, the staff of Morningside Hospital in Portland, Oregon, attempted to formulate referral procedures and recommendations. Although the effort was purely clinical, the lack of much knowledge anywhere about this topic plus the fact that no similar efforts had been made with Alaskans necessitated empirical and investigative methods to some extent.

The specific personnel directly involved in the study changed in both the vocational rehabilitation and hospital parts. Three different vocational rehabilitation counsellors were participants, the first being active for a year and a half, the second for approximately a year and the third for the last six months of this report. The hospital medical director remained as such for the first year and a half, then was present at the hospital for an additional six months. The present medical director arrived at the hospital for the last year and a half of the report. Thus the efforts and results are shared in by a number of different persons, which may or may not cancel out the different effects of their own personalities. During the first part of the program discussions and referrals were almost entirely made on an informal basis between the OVR counsellor and the hospital medical director. However, from the beginning the counsellor was free to and actually did informally discuss various aspects of the patients' problems with any of the hospital personnel—medical, nursing or ancillary. During the latter part of the first year a specific vocational committee consisting entirely of hospital personnel was established to evaluate and recommend intramural vocational assignments and from this group eventually developed opinions about OVR referrals and their possibilities. Toward the end of the second year a more formal vocational rehabilitation conference was established with the participants including the hospital medical director, the OVR counsellors and essentially the members of the hospital vocational committee. Thus the technique of discussion and referral was evolved in a manner somewhat similar to that which has been done with chronic physical illnesses such as tuberculosis. Ultimately the specific referral must still be made by the hospital medical director and accepted by the OVR counsellor, but the concept of conference and discussion makes these technical parts merely a final detail.

*Presented at the 10th Annual meeting, Alaska Chapter, American Association for the Advancement of Science, Juneau, Alaska, August 27, 1959.

At the outset, as neither the counsellor nor the medical director was greatly experienced in dealing with each other's discipline, some empirical formulae were devised before the early referrals. Among these were:

(1) An attempt would be made to refer patients whom the hospital felt would have the best chance of achieving success. This in effect limited the referrals to relatively young persons with in many cases physical handicaps in addition to their mental ones.

(2) It was agreed until the program was well established referrals would not include mentally retarded patients.

Almost from the beginning exceptions were made in the first category, but the second was rather closely adhered to until late in the third year.

Vocational planning was handicapped to some degree by the fact that the vocational counsellor was neither physically present in the hospital at all times nor even in the same city most of the time. This necessitated his reliance upon local agencies such as the U. S. Employment Service, whose main interest was definitely in persons other than Alaskans. Moreover, at that time the hospital had no social worker to assist between visits of the counsellor so that the contacts with the hospital were done mainly by the hospital psychologist. It was necessary to determine training possibilities, schooling possibilities, protective or sheltered workshop type of placements as well as ordinary job possibilities within the Portland and Seattle-Tacoma areas, so that patients so placed could continue under the general surveillance of the hospital. The chief assistance in on-the-job training and noncompetitive placement was Goodwill Industries of Portland, which was at the same time attempting to shift its emphasis from terminal placements to training of handicapped persons. No other agency in the Portland area was willing to make this attempt, though some such as St. Vincent DePaul were willing to accept an occasional terminal placement.

The accompanying tables demonstrate first the total number of patients referred, their average age range and stay in the hospital, and the results in terms of their OVR status, the hospital status (whether discharged, boarded out, on convalescent leave, or in the hospital) and their employment status. It is noted that there is one death in this record, which occurred after selective job placement and after the patient left the hospital on convalescent leave. Certain other patients who were initially referred were ultimately closed from referral without OVR action either because the patient refused services or relapsed before services could be initiated or were felt to be inappropriate referrals by the counsellor. It is noted that the employment status is different from the hospital status because some of those employed still lived within the hospital while they worked outside, while others who have successfully left the hospital are still unemployed. The second table shows a similar breakdown with specific disease entities noted. Approximately half of the patients referred were schizophrenic and the remainder were scattered among different diagnoses. Although the initial plan was to refer the most eligible patients, the emphasis gradually shifted toward more and more chronic patients, these being mostly schizophrenics. Probably this shift was assisted by increasing acceptance on the part of Goodwill Industries of our hospital patients, and may also have been influenced by the generally depressed economic conditions in the Portland area at that time, which precluded ordinary job placement. It is likely that an additional factor was the increasingly hopeful attitude of the hospital staff as well as the OVR counsellors toward some of these long-term patients. Several patients during the second and third year were referred for training in the Seattle-Tacoma area, ranging from actual high school programs to specific vocational and craft objectives such as carpentry. At the end of this period only one or two patients had actually completed a training program, but several were still in process.

Certain difficulties were encountered. One of the anticipated difficulties, that of acceptance of outwardly normal appearing persons as being handicapped, did prove true in many cases. Employers who were thoroughly briefed as to patients' difficulties as well as assets and who had accepted this prior to employing the patient generally had few difficulties and when they did, made extraordinary efforts to cope with these difficulties before admitting failure. As might be

expected, employers who were not well prepared and had little understanding had very little success with patients of any disease category who fell under the general term mentally ill. Even considering the length of time before such placements were attempted there were still many difficulties involved in training or job placement to the various psychiatric hospital therapies as well as patient morale. It seemed apparent to hospital personnel that this effect extended not only to the patients referred but also to those who had no hope of referral and also to those who had no need of referral. In addition, the presence of this type of program caused noticeable shifts

STATUS OF MENTAL PATIENTS REFERRED FROM MORNINGSIDE HOSPITAL TO OVR AFTER 3 YEARS

Diagnosis	No. of Patients	Admission Age Range	Admission Age Ave.	Length of Hospitalization Range	Length of Hospitalization Ave.	Employment Status		No.	Hospital Status	No.
TOTAL REFERRALS	41	5-59	43	2mo.-29yr.	4-5yr.	Discharged	Employed	7	Discharged	16
							Unemployed	9	Leave	8
						Leave or Board	Employed	9	Boarded Out	5
							Unemployed	4	In Hospital	11
						In Hospital	Employed	6	Deceased	1
							Unemployed	5		
						Deceased: (leave, unemployed)		1		
Organic Disorders	5	5-48	10	2-29yr.	10yr.	Discharged	Employed	1	Discharged	2
							Unemployed	1	Boarded Out	1
						Leave or Board	Employed	2	Leave	1
Psychotic Disorders						(died)	Unemployed	1	Deceased	1
Involutional Psychotic Reaction	3	50-56	52	1-2yr.	3/2yr.	Discharged	Unemployed	2	Discharged	2
						In Hospital	Unemployed	1	In Hospital	1
Affective Reaction	2	34-59	46	2mo.-3yr.	2yr.	Discharged	Employed	1	Discharged	2
							Unemployed	1		
Schizophrenic Reaction	21	16-51	30	6mo.-25yr.	6yr.	Discharged	Employed	2	Discharged	4
							Unemployed	2	Leave	4
						Leave or Board	Employed	5	Boarded Out	3
							Unemployed	2	In Hospital	10
						In Hospital	Employed	6		
							Unemployed	4		
Psychoneurotic Disorder										
Depressive Reaction	4	18-56	40	3-11mo.	7mo.	Discharged	Employed	3	Discharged	4
							Unemployed	1		
Personality Disorders										
Personality Pattern Disturbance	2	20-21	20	2-8mo.	5mo.	Discharged	Unemployed	1	Discharged	1
						Leave	Employed	1	Leave	1
Personality Trait Disturbance	3	16-19	17	6mo.-3yr.	16mo.	Discharged	Unemployed	1	Discharged	1
						Leave or Board	Unemployed	2	Leave	2
Mental Deficiency	1		18		16yr.	Board Out	Employed	1	Boarded Out	1

for the patients at a considerable distance from the hospital. This necessitated multiple types of support from the OVR counsellor and probably was much more time consuming to him in his solo capacity than would have been the case if the various hospital personnel were also on hand to assist as difficulties arose.

In conclusion, the presence of a vocational rehabilitation program was definitely an assist in attitudes of the hospital personnel, especially those in the ancillary fields and in the nursing areas such as attendants. Numerous observations and suggestions were made by these persons and it is possible that some of the beneficial effects on patients not directly touched by the program were due to the changes in attitude of the hospital personnel. ●

BLOOD ALCOHOL, YOURS AND MINE*

MICHAEL BEIRNE, M.D.

ANCHORAGE

Hootchino! Hootchino to all of you!** There are many, many people who have a keen interest in the subject of alcohol, and as I look amongst the audience this morning I am led to believe that many people have a working knowledge of this subject as well. Most everyone talks about alcohol. Most people think a little bit about it and most people like it. It is the abuse, not the use, that makes it dangerous. Lydia Pinkham gained fame and wealth with her magical pink elixir. Today we have Hadacol, boon to the oppressed. But in whatever form you get the booze, it can still make a fellow intoxicated—and that brings us around to our subject of blood alcohol levels and the medical and medico-legal implications.

You may want an alcohol study done because of a head injury, or coma, or for medico-legal reasons. If for medical reasons then no special permission is required. However, if for medico-legal reasons then you must have a signed and witnessed permit in which the patient agrees to having his alcohol level determined. If the patient is deceased then the next of kin or the United States Commissioner would give permission.

Laboratory techniques in general are designed to measure amounts of alcohol present in either the breath or fluid. The breathing bag is in common use in many police stations. It is fairly accurate, is more qualitative than quantitive but is acceptable legally depending upon the operator's skill. It tells whether the alcohol is over or under the legally acceptable limits.

Body fluids are analyzed quantitatively. In my laboratory the Kingsley and Current method (1) is in use. A simple green color is produced, the intensity being proportionate to the amount of alcohol present, and reduplication is excellent. Standardization of this procedure is of utmost importance and cannot be overemphasized. A control must accompany every test.

Blood is the common fluid submitted to the laboratory. However, urine is equally as good, in some respects better, and is more easily obtain-

able. Spinal fluid can be used also. Tissues, particularly brain, are satisfactory for analysis since alcohol diffuses almost equally throughout all body tissues and fluids. One should be careful not to clean the skin with alcohol prior to venipuncture since this could alter the results slightly although not significantly according to multiple studies (2).

The following guide for interpretation of blood alcohol concentrations is modified from Gonzales et al (3)..

Alcohol mg.%	Clinical Findings
0	Telling the truth.
50	Normal by ordinary observation. Reaction time slowed.
150	50% of people clinically intoxicated. Legally "under the influence".
300	Very intoxicated. Confused to stuporous.
400	Coma. Anesthesia, etc.
500	Most people die.

Normally there should be no alcohol in the blood stream, but some reducing substances are present so that a reading of less than 15 mg.% can result in a normal person. At 35 mg.% the average person will show definite impairment of his driving ability by special tests, and studies show that it takes two 12-ounce bottles of 3.2 % beer, or two ounces of 100 proof whiskey, consumed within one hour to put the average moderate drinker in this zone (4). Three beers or three shots will give a 50 mg.% level and most everybody suffers

*Delivered at the Alaska State Medical Association 14th Annual Meeting in Juneau, March 20, 1959.
**Editor's Note: Old Alaska Greeting. For origin, see concluding paragraph.

significant deterioration of his driving skill at this concentration. However, the law is very generous in this respect and the person is legally determined to be under the influence of alcohol only when a result of 150 mg.% or higher is submitted (5). About one-half of the people will be clinically intoxicated at this level. Everyone reacts differently to alcohol, the young and the old, the shy and the bold. And it is a well-known general biological law that individuals vary in the amount of a pharmacologic agent required to produce a given effect.

When the blood level reaches 500 mg.% most people will die (6). If death is sudden the mechanism is by respiratory failure. However, death need not ensue at the height of the blood alcohol concentration but can follow hours or days later, due probably to irreversible and progressive central nervous system injury. In such cases diagnosis may be difficult since the blood alcohol determination may be negative and the anatomical changes in fatal acute alcoholism are not diagnostic.

It takes about one pint of whiskey consumed over a two-hour period to give a 400 to 450 mg.% blood level. The poor fellow who chug-a-lugs the whole bottle, as a young soldier did last year when double-dared, doesn't have a chance.

The diagnosis of drunkenness is a clinical diagnosis and may be supported by laboratory findings. The physician testifies to intoxication; the laboratory helps to identify the toxin. Actually we are not interested in drunkenness as such but rather in a person's ability to carry out a complicated and finely coordinated task such as driving a car.

Alcohol is readily absorbed throughout the entire GI tract. Food slows the rate, but the higher the concentration in the GI tract, the more rapid the absorption. The metabolism of alcohol is extremely interesting in that the rate of metabolism is very steady and is affected by only a few conditions and then only to a slight degree. This rate is at the level of 15-20 mg.% per hour (7). This is a most significant fact because on the basis of this, higher blood alcohol levels may be predicated using the time elapsed between the last drink and the taking of the specimen. For example, if at 2:00 o'clock this morning, down at the Red Dog Saloon, one of you had a blood alcohol level of 250 mg.% (and I don't think this would be a too far-fetched hypothesis) and it is now 10:00 a.m., then the blood level would be approximately 100 mg.%, figuring eight hours elapsed time at 15-20 mg.% per hour being metabolized. If you were doing surgery at 8:00 o'clock this morning, your blood level would be approximately 130 mg.%—in other words you would be almost clinically drunk. But of more importance yet is the fact that your reaction time and your judgment would be tremendously impaired. A man can metabolize about one ounce of whiskey per hour if he's lucky. Beirne, working independently in a series of one case, does not consider himself lucky.

I should mention a number of errors that may develop with laboratory testing of alcohol and in the clinical diagnosis of alcoholism. The physicians should remember that he is making the diagnosis, not the laboratory. In severe cases of diabetes the high degree of acidosis may give a false positive alcohol level. Blood or body fluids that have deteriorated also may give false positives. Methyl alcohol gives a positive reaction just like ethyl alcohol. Cleaning the skin with alcohol, or the use of dirty containers, are other sources of error. Then there is the possibility of laboratory error which, heaven forbid, does happen.

Finally, in closing, I am going to tell you about a great Alaskan contribution to American literature. In 1867 when Alaska became American Territory, U. S. Army troops stationed here made booze from sugar and flour and the natives called it "Hootchinoo." During the gold rush days this term was shortened to hootch. So hootch to you. Happy hootching.

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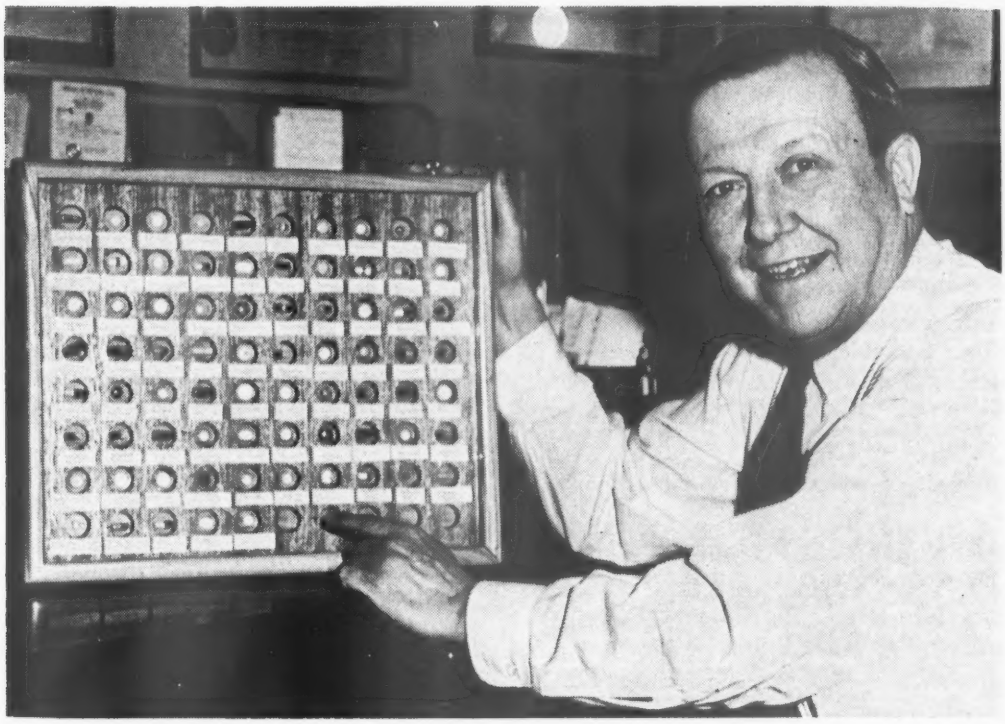
Feature Section

A Handy Device For The Identification Of Medications



Dr. William M. Whitehead, immediate past-president of the Alaska State Medical Association, with the "medication identification board" originated by him.

Frequently patients come to the doctor's office with medicine that has been prescribed elsewhere and the patients usually are not aware of what the medicine is. Just as frequently, it seems, patients will have run out of their medication and be unable to tell the doctor what it was, or even furnish an accurate description of whatever they might have been taking. Faced with this recurring problem, as all doctors are, Dr. William Whitehead of Juneau conceived the idea for a "medication idenitification board." He mentioned his idea to Mr. Gordon Munger, Alaska representative for Parke, Davis and Company, who volunteered to make the board for him. The offer was quickly accepted and now Dr. Whitehead's board is a reality!

The board is mahogany and measures 13 by 16 inches. There are 80 holes, each 13/16th of an inch in depth. One drop of Duco cement was placed in the center of each auger hole and with the aid of a hemostat the pill or capsule was centered on the glue. Typed labels, giving the name and amount of the medication, are affixed with Scotch tape, this affording an easy method of replacement when changes are desired. The board is hung on the wall of Dr. Whitehead's office, as a picture would be, so that it may be referred to readily by patients and the doctor.

Women's Auxiliary

A news column compiled by

Mrs. Vernon Cates

STATE COMMITTEE CHAIRMEN APPOINTED

The following committee chairmen have been appointed by Mrs. Francis Phillips, president of the Women's Auxiliary to the Alaska State Medical Association:

American Medical Education Foundation: Mrs. Arthur Schiable, 822 Northward Boulevard, Fairbanks.

Civil Defense: Mrs. Michael Beirne, 918 Tenth street, Anchorage.

Community Service: Mrs. Robert Johnson, Kodiak.

Legislation: Mrs. C. E. Chenoweth, Mt. McKinley Bldg., Anchorage.

Paramedical Career Recruitment: Mrs. Paul Haggland, c/o Fairbanks Clinic, Fairbanks.

Mental Health: Mrs. William Whitehead, 614 Harris street, Juneau.

Safety: Mrs. J. B. Deisher, Seward.

Convention Chairman: Mrs. Vernon Cates, 2015 Wildwood Lane, Anchorage.

AUXILIARY NEWS

Fairbanks

Mrs. James J. Lundquist was recently elected chairman of the Fairbanks Medical Auxiliary for the coming year.

The potluck dinner to raise money for A.M.E.F. was such a success we plan to do it again next winter. We are also planning a summer barbecue, the profits to be used for the same purpose.

Anchorage

The Anchorage Medical Society Auxiliary, having completed its first year of organization, nominated and elected officers for the ensuing year. They are as follows: President, Mrs. J. J. Fitzpatrick; vice-president, Mrs. J. H. Shelton; recording secretary, Mrs. William Maddock; corresponding secretary, Mrs. Rodman Wilson; treasurer, Mrs. Perry Mead.

Although much of our time in the past year was absorbed in organizational work we did participate in a number of planned programs and projects.

Our programs consisted of speakers from the Anchorage Medical Society; from P.A.R.C.A. (Parents' Association of Retarded Children in Alaska) outlining the aims and purposes of their new organization; from the Health Department on the possibilities of a rehabilitation program in this area; and representing the Juvenile Department of the Greater Anchorage Area, three officials discussed the problems of juvenile delinquency. A group civil defense meeting with the medical society has been planned.

P.A.R.C.A. was selected as our yearly project and in order to raise money the Auxiliary held a Christmas Confection Bazaar, which succeeded beyond our expectations. Holiday recipe folders, containing the favorite recipes of Auxiliary members, were designed, made, decorated and sold; and various members helped to decorate and sell the P.A.R.C.A. Christmas candles. A piano was purchased for P.A.R.C.A. with the profits of the bazaar. Another project of periodic collection of unused drug samples, from local physician's offices, for distribution to hospitals of physicians in outlying areas of the state, was started this past year. This project will be a continuous one. Members of the Auxiliary have been appointed to follow the action of the State Legislature, the Rehabilitation program and the Citizens Juvenile Action Committee.

Cash donations were made to the Science Fair and to the Cancer Society.

On the social level the Auxiliary held, other than the monthly meetings, a smorgasbord dinner which included the Medical Society. A Christmas luncheon at which each guest received a Christmas corsage and an earring exchange was held. At the request of the Lederle Laboratories, the Auxiliary planned the wives' events for the Lederle Symposium held in Anchorage during the annual Fur Rendezvous in February. The program consisted of morning registration and coffee hour followed by a luncheon for the physicians and their wives. Eskimo dances and other Rendezvous events comprised the afternoon program. An evening reception was held with the Rendezvous Pageant and Ball following later.

THE AMERICAN MEDICAL EDUCATION FOUNDATION

What Is A. M. E. F.? The American Medical Education Foundation is a non-profit, tax-exempt organization established in 1951 by some leaders in medicine to collect money from physicians and their wives for the support of the nation's medical schools. There is a similar organization to collect funds for that purpose from businessmen and corporations.

The A. M. E. F. is sponsored by the A. M. A.; and the A. M. A. pays all of its operating costs. Every dollar contributed goes to the medical schools.

What, Exactly, Does A. M. E. F. Money Pay For? It helps finance the teaching programs of the 85 approved medical schools in the country. The schools themselves determine where the money is most needed. It may be used for modern teaching equipment, for salary increases so that the schools may keep teachers who would otherwise be forced to leave, or for the establishment of new departments so that the schools may keep abreast of scientific advances.

Why Do American Medical Schools Need Financial Help? Student tuition pays only 18.2 per cent of the cost of the student's medical education, and postwar inflation, combined with the great changes that have taken place in medicine, has caused the schools' expenses to soar. Private support must be forthcoming, or the schools will be forced to turn to the federal government for help.

Why Should the Doctor and His Wife Give? The doctor, through the Medical Society, and his wife, through the Auxiliary, must lead the way if other people are to feel the urgency.

How Much Money Has Been Contributed? Each year since its inception in 1951, the A. M. E. F. has contributed one million dollars to the nation's medical schools.

What Is the Auxiliary's Role in A. M. E. F.? Each year the Women's Auxiliary increases its interest in A. M. E. F. Through its various activities—benefits, memorials, articles made for sale and direct gifts—the Auxiliary works hard at raising money for the nation's medical schools.

How Can I Help? Participate in your Auxiliary's A. M. E. F. activities. Give to A. M. E. F. (you may earmark your contribution to the school of your choice). Individual contributions should be made through your local or state A. M. E. F. Chairman. Your help is needed now!

Muktuk Morsels

A column devoted to medical news in Alaska, compiled by

HELEN S. WHALEY, M.D.

GENERAL

Annual Alaska Cardiac Clinic:

The second Cardiac Clinic is scheduled for September 6th at Sitka, and for September 8th through the 11th in Anchorage. Four members of the cardiac team from Stanford University Hospital in San Francisco, California will conduct these clinics and will include Dr. Frank Gerbode, a cardiac surgeon, and Dr. Herbert Hultgren, an internist, interested particularly in cardiac and respiratory physiology, who were members of the team last year. Dr. Saul Robinson, a pediatric cardiologist, and Dr. Herbert Abrams, a radiologist, are new additions to the team this year. These diagnostic clinics are operated in conjunction with the United States Children's Bureau open-heart surgery program, and are a cooperative endeavor of the Alaska Department of Health, the Alaska Heart Association, and the Alaska Native Health Service. Approximately 20 children and adults with both congenital and rheumatic heart disease are scheduled to be seen in Sitka; about 80 in Anchorage. Many of the patients attending the Anchorage clinic will be coming from the northern and central part of the State, from Fairbanks to Point Barrow. All physicians in Alaska are invited to attend the clinical sessions of these clinics as well as the formal teaching sessions, which are scheduled for each day. Patients evaluated at last year's clinic have been subsequently operated on at Stanford University Hospital, the University of Washington in Seattle, the United States Public Health Service Hospital in Seattle, and at the National Heart Institute in Bethesda, Maryland.

Trudeau Society:

An Alaska branch of the American Trudeau Society was formed during August, 1959, with Dr. Francis Phillips serving as president; Dr. Jose Silva, Medical Officer in Charge at the Anchorage U.S.P.H.S. Hospital, as vice president; and Dr. Ernest Gentles of the Tuberculosis Control Division of the Alaska Department of Health, as secretary-treasurer.

Neuromuscular Disease Clinics:

Approximately 40 children with various childhood neuromuscular disorders were seen at a two day clinic sponsored by the Alaska Crippled Children's Association, the Elks' Cerebral Palsy Fund, the Alaska Department of Health, and the National Foundation on July 8th through the 10th in Anchorage. Dr. M. A. Perlstein, of the Children's Neurology Service at Cook County Hospital, Chicago, served as consultant. Several weeks later, Dr. Joseph M. Foley, of the Neurology Service at Boston City Hospital, serving as a consultant for the Air Force, held a three-day adult neurology session in Anchorage.

The Alaska Division of the American Association for the Advancement of Science held its 10th Alaskan Science Conference in Juneau from August 25th through August 28th. The primary purpose of this meeting was to promote the exchange of information among investigators concerned with scientific research in Alaska and other northern areas. Sections on Agriculture, Anthropology, Biology, Engineering, Fisheries, Forestry, Geology and Geography, Geophysics, Medicine and Public Health, and the Social Sciences were represented. The president and general chairman of these sessions was Dr. Norman J. Willimovsky of the Bureau of Commercial Fisheries in Juneau, Alaska. Dr. Robert Whaley of Anchorage was chairman of the Medicine and Public Health Session, which included a panel discussion on the nutritional status of the Alaska Eskimo, with Drs. George Mann, Edward Scott, and Christine Heller participating. Additional papers on tularemia in Alaska; fibroelastic characteristics of Alaska natives; and rheumatic heart disease among Alaskan natives were presented. At a second session of the Medicine and Public Health Group, papers on the vocational rehabilitation of Alaska mental patients; immunological studies on respiratory viruses; comparative study of the sanitation aid program in Alaska; etiology of hereditary methemoglobinemia; comparative incidence of clinical poliomyelitis in the Alaska native and nonnative residents of 1950-54; and incidence of polio-

myelitis virus antibodies among residents of two Bering Sea island communities were presented. In addition under the section of Biology and Medicine, a number of extremely fascinating papers on the metabolism of hibernating Arctic animals and the effect of prolonged cold exposure on these various animals were presented. Many of these papers originated from the Arctic Health Research Center and the Air Force Aero-Medical Laboratory of Ladd Air Force Base in Fairbanks. Dr. Laurence Irving of the Arctic Research Center in Anchorage was the chairman of these latter sessions.

LOCAL NEWS

JUNEAU. Dr. Henry Gibson, former Commissioner of Health, has been officially appointed the Director of Health under the new Commission of Health and Welfare. After spending three weeks in a post-graduate course in respiratory Physiology in Edmonton, Canada, Dr. Henry Widle has resumed his duties as an internist with the Juneau Clinic.

KETCHIKAN: After many years of practice in this area, Dr. G. Lee Stagg is returning to Minnesota, and his practice is being taken over by Dr. E. L. Winton of Loma Linda, California.

CORDOVA: Dr. Glen Crawford, who until recently was associated with the United States Public Health Service in Anchorage and Bethel, will do a 'locum tenens' for Dr. Joseph A. Tedesco. After October 1st, Dr. Crawford will be associated with Dr. Charles St. John in general practice in Anchorage.

FAIRBANKS: A new clinic has been formed by Drs. James A. Lundquist and Lawrence I. Dunlap, formerly of the Doctors' Medical and Surgical Clinic, which will be known as the Tanana Valley Medical and Surgical Group. Dr. William Dunbar has joined Dr. Henry Storrs in the general practice of medicine. Dr. Kenneth Kaisch left the Fairbanks Clinic and Alaska to become a Major in the regular Army Medical Corp July 1st. Dr. George Cloutier started a residency in Psychiatry in Boston, and Dr. Elliot L. Coles returned to Milwaukee to practice Orthopedics. Two new physicians have joined Dr. Weston's group at the Doctors' Medical and Surgical Clinic. Dr. Samuel McCarran, formerly of Reno, Nevada, has specialty training in both Surgery and Anesthesiology. Dr. Carl Boswell, formerly of New York City, joined the group as an Internist.

FORT YUKON: As this community is without a physician since the departure of Dr. W. Burns Jones, several Anchorage physicians have volunteered their services for one to two week periods. During July, Dr. Fred Hillman, a surgeon with the United States Public Health Service Indian Hospital in Anchorage, and his wife, Dr. Louise Ormond, an internist, spent one week as volunteer physicians in the community.

BETHEL: Dr. Harriet Jackson, formerly Medical Officer in Charge at the United States Public Health Service Hospital and most recently associated with the Children's Bureau ENT Survey out of the McGrath area, opened her office July 1st as the first private physician in Bethel. She is equipped to do deliveries and minor surgery such as T & A's, in her office, as she will have no private hospital facilities closer than Anchorage or Fairbanks. To date she has been frequently called upon to make house calls with the help of various bush pilots to villages 50 to 100 miles away.

KODIAK: Drs. Robert Johnson and Bruce Keers and their wives have taken up the art of skin diving, complete with frogman outfits.

PALMER: Chugiak, located halfway between Palmer and Anchorage, now has the services of Dr. Marshall Simpson three days a week. He will maintain his office in Palmer the days he is not at Chugiak.

ANCHORAGE: Post-graduate courses were attended by Dr. Milo Fritz in rhinoplasty in New York City and by Dr. John Tower, who attended the International Congress of Pediatrics in Montreal during July. Dr. Tower recently received his private pilot's rating and has joined the rapidly increasing group of Anchorage flying physicians. The Drs. Chao recently had their third child, a girl, and Dr. Chao has returned to her duties as anesthesiologist at Providence Hospital after a month's leave of absence. Since Dr. Joseph Gallagher's transfer to Washington, D. C., Dr. Stewart Rabeau has been Acting Area Medical Director of the United States Public Health Service. Dr. Harvey Zartman, a 1953 graduate of the University of Chicago, who recently completed his Pediatric residency at Bob Roberts Hospital, a branch of the University of Chicago, joined Drs. John Tower and Helen Whaley in pediatric practice August 1st. He was formerly stationed at Ladd Air Force Base. ●

Letters to the Editors . . .

"A QUESTION OF FREEDOM"

On March 9, 1959, the American Cancer Society released to all its members in Alaska and presumably to the rest of the United States, a bulletin called "A Background Paper on Krebiozen," completely negating the clinical findings and the research evidence published by the Krebiozen Foundation and casting suspicion on even the existence of the drug. Insinuations were made as to the integrity of the clinical investigators working with the Krebiozen Research Foundation.

Krebiozen was brought to the United States by Dr. Steven Durovic in 1950 and presented for evaluation of its efficacy in cancer treatment to Andrew C. Ivy, M.D., then vice-president of the University of Illinois, in charge of research. Dr. Ivy was presented with this substance primarily because of his reputation and integrity in the fields of scientific research. Former executive director of the National Advisory Cancer Council and former director of the American Cancer Society, Dr. Ivy is an outstanding scientist, world-famous as a physiologist and a major contributor to our present knowledge of gastro-intestinal physiology. He represented World Medicine as an expert witness at the Nuremberg trials on the subject of ethics and clinical investigation. Before he became vice-president of the University of Illinois he was professor of physiology at the University of Northwestern School of Medicine.

Following his initial publication of the favorable results of clinical investigation of Krebiozen based on the files of 140 patients treated, a controversy was started which is still continuing eight years later. During this interim period the Krebiozen Research Foundation has continued its investigation and clinical trial of Krebiozen.

With the suspicion that where there is this much smoke there must be a little fire I have undertaken to summarize Dr. Ivy's reply to the American Cancer Society's "Background Paper on Krebiozen," as set forth in the U. S. Congressional Record, May 20th, 1959, pages 7740-7747. This seems indicated since, to my knowledge, Dr. Ivy and the Krebiozen Research Foundation have not been allowed to publish such a report on Krebiozen in any publication controlled by the American Medical Association. One of the cardinal points made in Dr. Ivy's reply centers around the first AMA investigation of Krebiozen, the results of which were published in its Status Report on Krebiozen in 1951. This 1951 critical study, Dr. Ivy claims, was in part forged and falsified in that 24 out of their 100 cases were fabricated by Dr. Henry Szudjewski, a member of the AMA's investigating committee. To support this charge Dr. Ivy states that ten of those patients declared dead or dying by the AMA in 1951 appeared before the commission of the Illinois General Assembly in 1953 and protested under oath that they were indeed alive and in good health. Dr. Szudjewski also admitted under oath before this same commission that he had never treated any patients with Krebiozen. Dr. Ivy states that of the remaining 76 cases included in the AMA "Status Report" 40 were so close to death that they received only 2 ampules of Krebiozen 72 hours apart and of the remaining 36 cases 33 were so close to death that they received only 4 ampules of Krebiozen.

If this be true, organized medicine has been guilty of presenting one of the most fraudulent and fictitious reports on the evaluation of a drug in its history.

The American Cancer Society in its background paper asks, "Has Krebiozen been tested?" and, as an answer, cites the following:

1) The above AMA "Status Report," 1951.
2) The report of the committee on cancer diagnosis and therapy of the National Research Council.
3) The report of the Cole Committee, a panel of six physicians headed by Dr. Warren Cole.
4) The opinion of Dr. Stanley Reiman, former director of the Lankenau Institute.

Dr. Ivy states, regarding the Report of the Committee on Cancer Diagnosis and Therapy of the National Research Council, that Krebiozen was not used by this committee and that they only endorsed the fraudulent "Status Report" of the AMA. This is supported by the testimony in 1954 of Miss Isabela Watson, executive director of the committee.

The published negative conclusions of the

Cole Committee, Dr. Ivy states, are not supported by its findings which were subpoenaed by the Illinois Legislative Commission investigating the controversy. The investigation by this commission revealed that the Cole Committee concurred in the histologic diagnosis of malignancy in 8 out of 9 slides presented to them and that they found 5 of the slides from these same patients negative for malignancy following the Krebiozen therapy.

As fourth evidence in answer to the question, "has it been tested?" the American Cancer Society quotes Dr. Stanley P. Reiman, director of the Institute for Cancer Research as saying "we have cured no patient with Krebiozen." This public statement by Dr. Reiman is in direct contradiction to the report Dr. Reiman presented to the Cole Committee. This report was based on the results of 21 months of experimentation in the Lankenau Research Institute where under his supervision 40 patients were treated with Krebiozen. This report of Dr. Reiman to the Cole Committee concludes "the material has definite biologic activity specifically against tumor cells either directly or indirectly of sufficient degree to warrant continued investigation both clinically and from the basic investigation of its mode of action."

Further in the "Reply of the Krebiozen Research Foundation" to the American Cancer Society's paper, in answer to the criticism that the Krebiozen research has been privately printed, the Krebiozen Foundation states "that all publication in the medical literature has been systematically blocked through the exercise of bureaucratic control by the American Cancer Society and the American Medical Association over the scientific community." The Krebiozen Foundation states that in spite of numerous attempts, Dr. Ivy and Dr. Durovic have been unable to have an article on Krebiozen accepted for publication in a medical journal since 1951.

The American Cancer Society's paper goes on to intimate that Krebiozen may be "non- existent" and presents as evidence the 1958 statements of two chemists. Dr. Paul Kirk and Dr. Arthur Furst of the University of California and Stanford. Their testimony that nothing was found in the samples of Krebiozen except heavy mineral oil or Nujol, not only was published in the American Cancer Society's paper but found its way into the news wire service of the country and was broadcast in the regular news broadcast in California.

The Krebiozen Research Institute refutes their testimony by stating 1) that neither Dr. Batchelder, chairman of the American Cancer Society in California, who supplied the ampoules, nor Dr. Kirk, nor Dr. Faust had ever requested Krebiozen and none was ever sent to them by the Krebiozen Research Foundation and 2) that Krebiozen is not put up in Nujol, a heavy mineral oil, but in No. 9 light mineral oil and 3) that for the amount of animal testing, spectroscopic work and chemical analysis, Dr. Furst would have required at least 360 ampoules of Krebiozen (Dr. Furst had testified that he had received 2 ampoules of Krebiozen).

I have attempted to summarize a few points in the long history of the Krebiozen controversy brought out in Senate hearing by Senator Langer, in May of this year. The charges, made by the Krebiozen Research Foundation to the American Medical Association and to the American Cancer Society, of forgery, of the use of influence by important administrators of the AMA and the ACS, and the charges of suppression of publication of clinical material and of reporting of unscientific data for our general consumption in order to gain our negative support, certainly bear further investigation and public hearing. To my knowledge the AMA and the ACS have never given a satisfactory explanation for their failure to publish a reply to these accusations.

We have often been disillusioned by publicized research and the promotion of drugs found in multicolor brochures but the maintenance of freedom within our laboratories and our medical practices is worth the price of this disenchantment. Should we ever acquire the habit of failing to answer when the boy calls "wolf" we may some day pass up a drug, seriously delaying progress in medicine. Anyone who is familiar with the history of aspirin, digitalis, the sulfonamides, asepsis and small pox vaccine, knows this to be true. Certainly our medical organizations, principally the AMA, have a responsibility to help in safeguarding the public from toxic drugs and to investigate false claims of efficacy of drugs, but this responsibility does not and should not underwrite a carte blanche for any medical society to infringe on the right of a physician to use new drugs in his research and to publish the results thereof.

Merritt P. Starr, M.D., Anchorage

Editorial Page . . .

VALDEZ NEEDS A DOCTOR

Like many small Alaska communities the picturesque Prince Wiliam Sound port of Valdez is without the regular services of a doctor. Many have practiced in the town in the past but have left for varying reasons. Now there is no one to use the well-designed and well-equipped twelve-bed hospital built in Valdez in 1955. The few nurses in town are all the unfortunate townsfolk have to turn to in time of illness or injury. The nurses in turn feel harassed, for their services can be on no basis other than voluntary. But, more than this, they feel ill at ease because they must make medical decisions far beyond the scope of their training. The nearest doctor is Dr. James Pinneo at Faith Hospital of the Central Alaska Mission in Glenallen, one hundred twenty miles away over Thompson Pass.

A part of the problem at Valdez is that in the years since its heyday at the turn of the century the town has had a shrinking economy and a population steadily dwindling to its present five-hundred individuals. Mining is dead at Valdez. So is fish canning. Freighting by truck to Fairbanks had flourished in the past, but lower rates by the Alaska Railroad through Seward or Whittier have largely killed this industry. Tourists do visit Valdez in the summer to fish or to see nearby Columbia Glacier, and this trade represents an important source of income for the town. As one resident expresses it, "we live off tourists in the summer and off each other all winter." With so bleak an economy it is not surprising that this isolated community has had trouble in finding and keeping a physician.

The outlook may now be better, however, for, as we all know, the State Legislature in its first session authorized the purchase and renovation in Valdez of a largely unused sprawling motel-like apartment for use as a hospital for custodial psychiatric patients, many of whom are now quartered in Oregon. Although the legal ritual attendant upon a land transaction has not yet run its customary tortured course, it is anticipated that at some time in 1960 the Valdez mental hospital will be prepared to accept patients,—if a doctor can be found to care for them.

The hiring of a doctor for this purpose lies largely within the hands of Dr. J. B. K. Smith, Chief of the Section of Mental Health, Division of Health of the Alaska Department of Health and Welfare. A generalist, not a psychiatrist, will be sought to care for the physical needs of the patients, for we have been promised that each patient assigned to Valdez will be carefully screened to be sure that his mental illness is irremediable. A salary of at least $10,000 will be offered to the doctor by the State, and much to the delight of the people in Valdez, the physician will be encouraged to establish a private practice in the town and (with the approval of the local hospital board) in the lovely little hospital.

Thus, with a substantial guaranteed annual income, procurement of a physician for Valdez may be easier, but a stampede to Dr. Smith's office is hardly expected, for the prospect of caring for upwards of two-hundred-fifty valetudinarians in a small, out-of-the-way town, with no medical colleagues close by for consultation or commiseration will appeal to few, and of the few some may be medical derelicts or physicians seeking to escape from major personal problems in other settings. Valdez could well represent to one of these a haven in the storm of his life. Such a man will not do for our mental patients (no matter how irremediable), and such a man will not do for the people of Valdez.

Neither Dr. Smith nor the Valdez hospital board, of course, intend to hire a derelict, but the

memory of the succession of doctors since World War II may fade too quickly from the minds of the citizenry, who in their desperation may, like a spinster eager for union, jump at the first man who comes along. In our opinion the joint selection of a physician by the State and Valdez should not be hasty. Despite the limitations of the job and the town, excellence should be sought. The positive should be accentuated (to distort a phrase),—the guaranteed salary, the fine hospital, the good hunting and fishing, the famous friendliness of the people in Valdez. All of these, if properly broadcast, might have real appeal to a competent, well-trained, emotionally stable physician somewhere who would be interested in an unusual, rewarding, and intensely independent medical experience away from Suburbia.—perhaps a hungry doctor just out of internship or general practice residency training; perhaps an older physician legitimately exhausted by busy practice rather than enervated by personal troubles. And no delusions should be nurtured about attracting anyone, especially a younger man, to stay for more than a few years, for a succession of good men would serve the State and the community almost as well as a permanent man.

Finally, how will Dr. Smith's office or the town of Valdez know whether or not an applicant for the job is competent? They won't,—at least not from the application form and letters he submits. Almost everyone has been graduated from a "Grade A" medical school and has had an internship in an "acceptable" hospital, and letters of reference are among the easiest of all things to obtain. Few doctors are so awful or so friendless that they cannot find someone to write a nice letter about them. Sad to say, a man may be utterly lacking in medical judgment and impossibly boorish personally and still have muddled through medical school and an internship so as to "look good on paper." What is needed to avoid an unfortunate choice are truly candid opinions about a candidate. These must be sought from both the professors and from the contemporaries of the physician. Of the two the opinion of the contemporary may be less balanced but is often more revealing. Fellow interns and residents usually know the pretenders in their midst. Complete information as possible about any applicant must be obtained, and in this regard all of us practicing in Alaska might be of help in securing a physician for Valdez, for our medical backgrounds are sufficiently varied that we should be able to get direct information about any man seriously being considered for the position in Valdez.

Although the opinion of the Alaska State Medical Association was not sought concerning the advisability of placing a mental hospital in Valdez, we trust that the State, as well as the Valdez hospital board, will feel free to ask the Alaska State Medical Association to help them find a doctor for Valdez.

Rodman Wilson, M.D., Assistant Editor

President's Page

"We hold these truths to be self-evident" was a phrase used by Thomas Jefferson many years ago in the founding papers of our nation. Several things which seem obviously self-evident to me are repeatedly not labeled as such by some members of the Congress of our United States.

Doctors have repeatedly opposed any move toward socialized medicine and with the support of the general public have defeated many direct attempts to promote it. However, few of us realize that we can be socialized by the increase of our taxes to the point where we would be working for the government most of the time. This is what I call the back door to socialized medicine.

It seems quite self-evident to me that the government cannot increase their services without a corresponding increase in taxes sooner or later. This seems to escape the attention of many of our legislators in their efforts to obtain progressively more appropriations for their own constituents. A constantly increasing national deficit of close to three hundred billion dollars and a deficit in the fiscal year just passed of twelve and one-half billion dollars would seem to indicate that government services should be decreased in order to help balance the budget, instead of increased.

One easily identified government service which could be eliminated at great saving, would be the Veterans Administration care of non-service connected disabilities. According to our American system these men should be cared for by their local medical profession.

It is also self-evident that the Forand Bill, providing for government subsidized medical care for all over sixty-five, would not only put another 10% of our total population directly under socialized medicine, but would socialize us further by adding several billion dollars to annual federal expenditures thus increasing taxes and inflation and contributing very little but confusion to the medical care picture. This bill is being considered in Congress at present and in my opinion we all should make our thoughts known to our senators and representatives.

GEORGE E. HALE, M.D., President
Alaska State Medical Association, 1959-1960

U. S. Public Health Service News

DIVISION OF INDIAN HEALTH
ALASKA NATIVE HEALTH SERVICE

GENERAL

Dr. Joseph A. Gallagher, Medical Officer in Charge of the Alaska Native Health Service, left Anchorage July 17 to become Assistant to the Chief for Hospitals in the Division of Indian Health with the U. S. Public Health Service. He will be stationed in Washington, D. C.

Dr. Edwin E. Rabeau was appointed Acting Medical Officer in Charge of the Alaska Native Health Service, stationed at the Alaska Native Hospital, Anchorage.

The following new assignments to the Alaska Native hospitals have been made:

ANCHORAGE—Medical Officers

Dr. James W. Justice, a graduate of Bucknell University and the School of Medicine of the State University of New York, who recently completed his internship at the San Francisco, California, General Hospital.

Dr. James K. Van Kirk, who interned at Western Pennsylvania Hospital in Pittsburgh in 1957 following his graduation from the University of Pittsburgh, joined the Public Health Service in 1958 and was formerly assigned to the PHS Outpatient Clinics at Los Angeles and San Pedro, California.

Dr. Marc D. Rosenberg, who graduated from Cornell University and School of Medicine of the State University of New York, has been resident in anesthesiology and staff physician at the Bronx Municipal Hospital Center, New York, since 1957.

Dr. Carl E. Sandberg transfers to Anchorage from the PHS hospital at Seattle where he interned following graduation from the University of Minnesota.

Dr. J. Guarino graduated from Louisiana State University School of Medicine in 1957, and has just completed a year as general practice resident at the Charity Hospital of Louisiana, New Orleans.

Dental Officer

Dr. Alfred Hamel joined the PHS in 1956, following his graduation from the Baltimore, Maryland, College of Dental Surgery. Prior to his transfer to Anchorage, he served as Dental Officer at the U. S. Coast Guard Receiving Center, Cape May, New Jersey.

Pharmacists

Mr. Edward E. Madden, Jr., graduated from the Massachusetts College of Pharmacy at Boston in 1957, and has been on the staff of the PHS hospital in San Francisco for the past two years.

Mr. Duane A. Tye is a graduate of Washington State College.

KANAKANAK

Dr. J. Kenneth Fleshman, who interned at Los Angeles County, California, Hospital after graduation from the University of Southern California School of Medicine, has been named medical officer in charge.

BARROW—Medical Officer

Dr. George S. Walter, medical officer in charge of the Barrow hospital, is a graduate of the University of Colorado Medical School. He interned at the Denver General Hospital, Colorado.

Dental Officer

Dr. Robert C. Birch was graduated in June from the University of Minnesota Dental School.

TANANA

Dr. Stanley Hadley, Jr., assigned as medical officer in charge, completed his internship at the Allegheny General Hospital in Pittsburgh, Pa., in June, 1958, after graduation from the Hahnemann Medical College at Philadelphia.

Dr. John E. Hepler, who will assist the staffs at both Barrow and Tanana hospitals, is a graduate of the Hahnemann Medical College, Philadelphia, and interned at the Allegheny General Hospital in Pittsburgh.

KOTZEBUE

Dr. Robert I. Fraser, who has just completed a year in residence at Pennsylvania Hospital in Philadelphia; and Dr. Charles H. Neilson, a graduate of the University of Cincinnati College of Medicine, Ohio. Dr. Fraser was stationed at Kotzebue in 1957-58 and is returning as medical officer in charge.

PRIBILOFS

Dr. William H. James, a recent graduate of Ohio State University, who interned at Denver General Hospital, Colorado, will be medical officer in charge at St. George Island.

Dr. Earl S. Young, who interned at Central Maine General Hospital, Lewiston, after graduation from Tufts University School of Medicine, Boston, has been assigned as medical officer in charge at St. Paul Island.

BETHEL

The new medical officer in charge is Dr. George N. Wagnon who has been in charge of the Kanakanak hospital since 1955. Dr. Wagnon is a graduate of Emory University Medical School in Georgia and was resident in surgery at Georgia Baptist Hospital in Atlanta. Also named to the staff were Dr. Roland G. Beckering, a graduate of Northwestern University Medical School, Chicago, who recently finished internship at St. Luke's Hospital in Duluth, Minnesota; and Dr. Clayton H. McCracken, Jr., a graduate of Duke University School of Medicine, Durham, N. C., who interned at Louisville, Kentucky, General Hospital.

KETCHIKAN

Dr. Aubrey N. Stevens, who graduated this spring from the University of Minnesota Dental School, has been named Dental Officer in charge.

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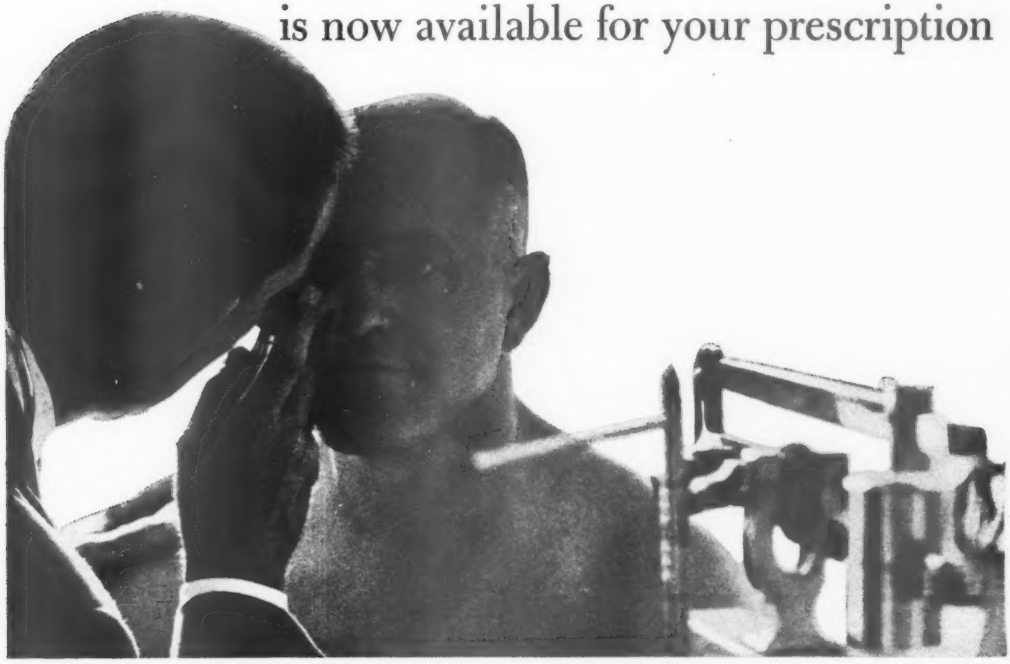

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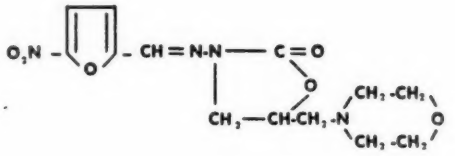

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*Includes many strains resistant to antibiotics.

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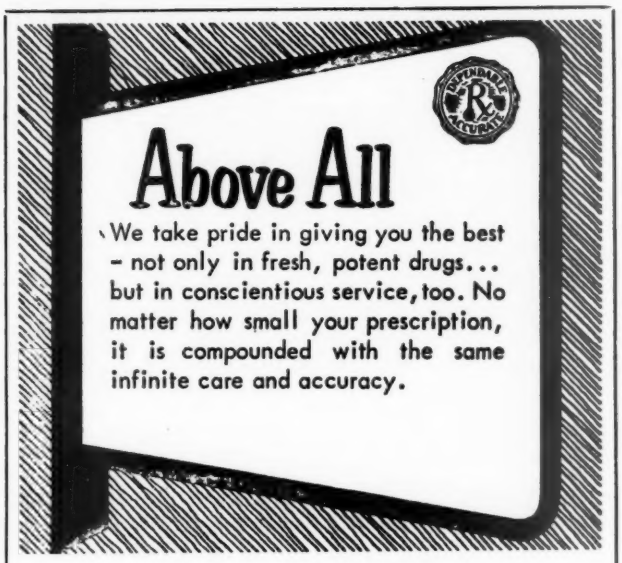
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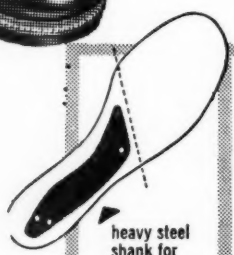

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